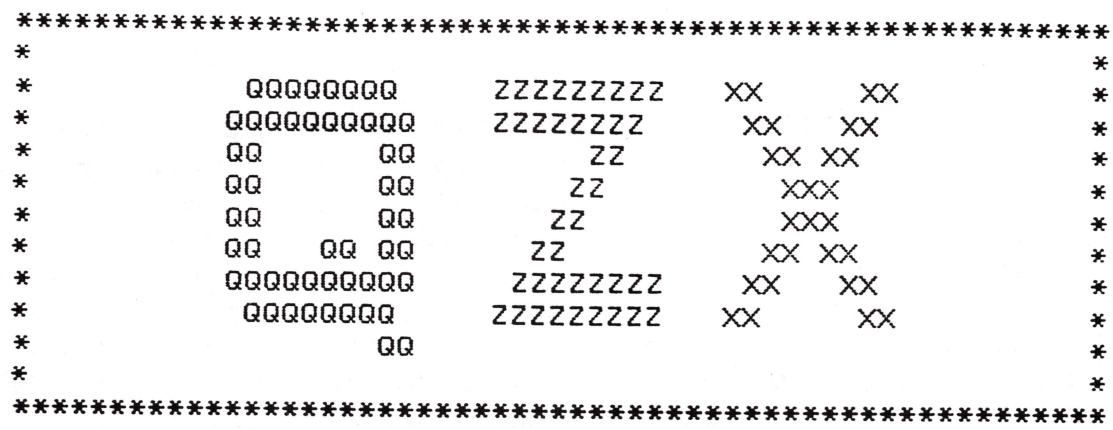
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The Journal Covering Amateur Radio & Sinclair Computers
ZX80; Micro-Ace; ZX81; TS1000, 1500, & 2068; QL; Z88

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EDITOR'S NOTES

K5XY

Well, the printer did it again. I got yet another price for doing the September issue. (That sentence sure looks familiar.)

Jay Siegel of New York is reported as continuing a newsletter on the FDD disk drive system for the Sinclair that had been abandoned by Zebra systems.

It has been reported that the Home Shopping Network has been selling the Z88.

The Sinclair Spectrum is still going strong in Europe. In fact several new computer systems introduced in Great Britain include Spectrum Emulation in their package. The report is that the real thing is better.

Notice that we have a new display advertiser in this issue. This company is run by a long time Sinclair user, Peter Hale. It specializes in business software for the QL, but has some hardware of great interest to hams who are adding things to their ZX81 type Sinclairs. Peter also says that his company is always on the lookout for good QL programs to sell. Here might be a good marketing organization for your polished ham related QL program. Do you have a good logging program, a QSL maker, or useful program? If so, write to EMS at the address given in their ad in this issue.

I am sorry that this issue is late, but I got involved in setting up a large amount of software on a hard disk and devising a menu system for it. As a Sinclair user, 20 Megabytes sounds like a very large disk to me. But when several of the programs take over 1 MB each, it does not take long to fill a disk. I was also involved with a data base program which held over 6 MB of data on various kinds of computer equipment. Desk top publishing also eats up the storage at a great rate. A one page circuit diagram took over 1 MB by itself. A virus inserted itself into the process and complicated it greatly. Much of the work had to be done twice, and one program was lost completely. At least that particular problem has not caused much trouble in the Sinclair community.

Another reason that this issue is late, is that in the last issue I promised to write an article offering some improvements on the program that appeared in the last issue. It was pleasent enough to write the article, but it took some time and I put off starting it longer than I should. That article is in this issue. So is another program for the TS1000 type computers, also from WA3QLW. You can apply some of the error checking suggestions of the first article to the program.

QZX was mentioned in QST recently. The mention resulted in several letters requesting information, but in no new readers yet. I am trying to get QZX mentioned in the Computer Monthly, the magazine which has taken over the Sinclair columns cut from the Computer Shopper.

BITS AND BYTES

141 The following poke can be used on the TS2068 to change the click from the keyboard. POKE 23609,X where X can go from 1 to 255.

142 The following poke can be used on the TS2068 to provide automatic scrolling with print statements. Use before the print staement. It works like the scroll command on the TS1000. POKE 23692,2.

143 The following poke can be used on the TS2068 as another way to control the scroll. It scrolls 22 lines, then a key must be presses for every line. POKE 23692,1.

144 The following poke can be used on the TS2068 to put it into the CAPS mode. POKE 23658,8.

QL HEAT PROBLEM CORRECTED

by Hal Sohn, SINCUS

QZX 1990 OCTOBER

I have read many articles on correcting the over heating problem due to the 5.0V regulator (7805), which supplies the regulated 5.0V to the QL. When you look inside the QL, I wonder if SIR Clive's miniaturization caused more problems, than it was worth.

1) In correcting the problem with my QL, I decided to remove the source of the problem, the REGULATOR and its HEAT SINK. By removing the eight screws on the bottoms of the QL case and opening the QL, the only task to perform was to remove the one screw holding down the 5.0V regulator, and remove the regulator from its socket. With the regulator removed, the heat sink will now lift out. The only power components remaining which would add to any or very little heat is the regulator for the micro drives (2). See fig 1.

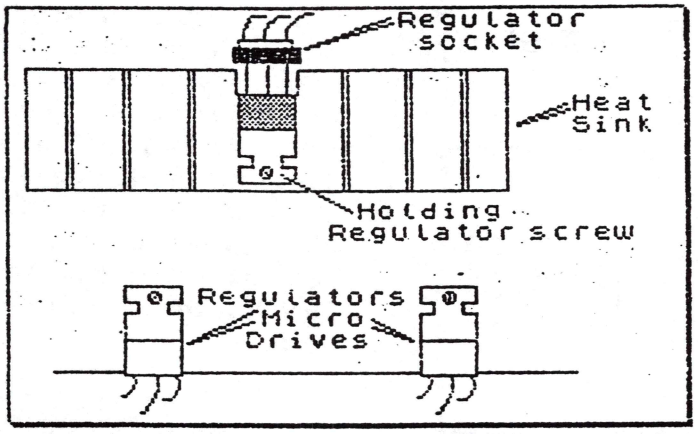

Figure 1.

2) Obtain a wire about the length of the cable from the POWER PACK to the QL. Strip one end of the wire and insert the striped end into the input slot of the regulator socket, see fig. 2. I then cut a small piece of conductor lead from a old IC and soldered the striped end of the wire to it, and then inserted it into the regulator socket. Using a small wire clamp (plastic), the wire was then fastened using the screw which was used to hold the regulator in place. This will now hold the new added wire and prevent the wire from coming loose. The remaining wire was fed through the opening in the QL, the opening used for the Network plug. This wire will be used as part of the old power cable. See fig. 2. This completes the modification to the QL. The remaining steps are to add the 5.0V regulator to the QL externally, as part of the power cable as shown in fig. 3.

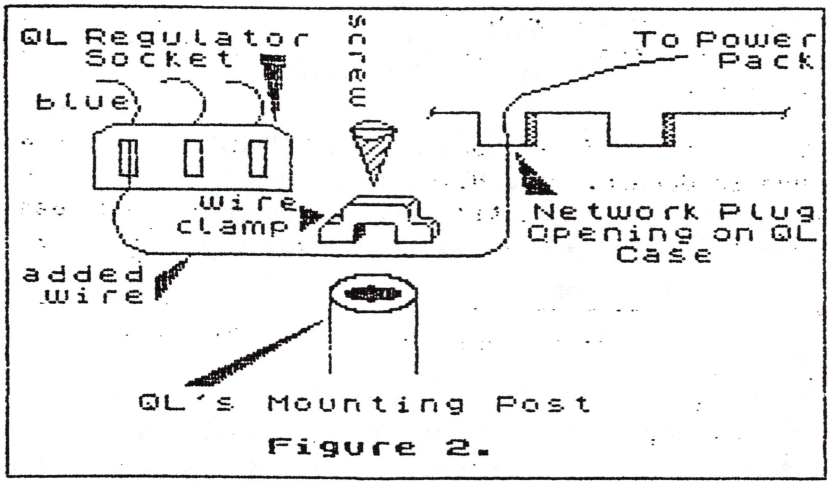

Figure 2.

3) POWER CABLE: Measure about 6" to 10" on the power cable, from the Power Pack end. Cut the cable at this point. This is the point where the 5.0V regulator will be inserted and connected. The regulator will now be in series with the QL, and part of the power cable.

4) PARTS needed: 1 mini box the size to hold the regulator heat sink or larger. 2 Rubber grommets, inner hole size, for the power cable. 2 capacitors; a .1uf 35v and a 1000 uf 35v. NOTE: I used a different regulator, a UA323 with a higher current rating (3A). The original regulator (7805) with its QL heat sink will work fine.

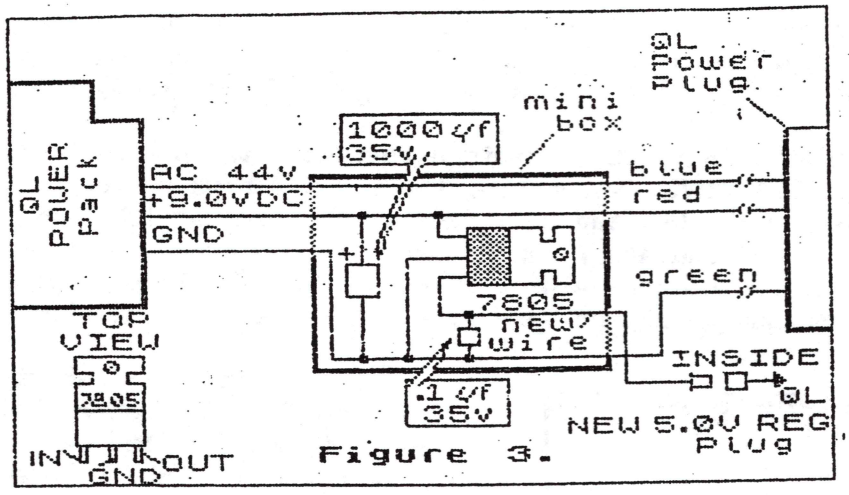

Figure 3.

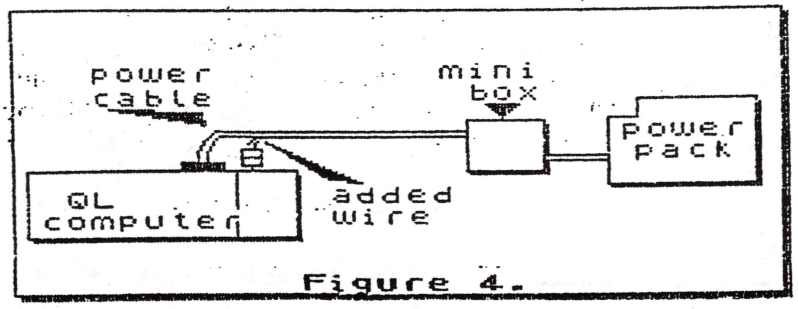

Figure 4.

5) On each end of the mini box, drill a hole and insert the grommet. Mount the heat sink to the outside of the mini box (top). Insert each end of the cut power cable into each hole of the mini box and wire as per drawing. See fig. 3. It should only be done by a person, with a background in electronics. I did not go into detail on dimensions, you may want to mount the regulator and heat sink some other way. The extra wire was taped to the power cable and a small plug was used for a quick disconnect at the QL. The main idea was to show how to remove the regulator from the inside of the QL. The QL now runs COLD.

ERROR CHECKING

K5XY

In last month's article entitled "Single Element Antenna Program (for TS1000)" it was stated that this month would offer some elementary improvements to that program. Here are some suggestions for improving the error handling capabilities of that program.

It is always a good practice to make your programs reject all input of a type which is not expected. In fact in the reviews of software in most magazines one section is often devoted to the error handling capabilities of the program. Anybody who has watched another person enter data knows why error handling is such an important topic.

The program featured last month has three places where it expects input. The first is in line 12. That, and the surrounding few lines are reprinted here for reference.

```
 6 PRINT "SELECT FOLLOWING"
 7 PRINT "1/4 W PRESS 1"
 8 PRINT "1/2 W PRESS 2"
 9 PRINT '5/8 W PRESS 3"
10 PRINT "3/4 W PRESS 4"
12 IF INKEY$ = "" THEN GOTO 12
13 LET A$ = INKEY$
15 IF A$ = "1" THEN LET K = 234000
18 IF A$ = "2" THEN LET K = 468000
20 IF A$ = "3" THEN LET K = 585000
25 IF A$ = "4" THEN LET K = 702000
30 PAUSE 50
35 CLS
```

In line 12, one is asked for one of four numbers designated in the provious lines. This number is used to set a particular value of K. But what happens if the input is not one of the four previously defined numbers? This inexpected value (now put in the variable A$ by line 13) falls through all the four IF statements (lines # 15, 18, 20,

and 25) and continues from line 30. Thus the program runs to its conclusion with the value of K still containing 0, thus producing nonsense.

What one needs to do is return the program to line 12 after a warning message if the input is unacceptable. It is probably best to return the program to line 6 so that the allowed choices are again presented. This procedure will add many lines to the length of the progrqam but will make it more user friendly. Try the following lines.

```
15 IF A$ = "1" THEN GOTO 28
18 IF A$ = "2" THEN GOTO 30
20 IF A$ = "3" THEN GOTO 32
22 IF A$ = "4" THEN GOTO 34
23 PRINT "YOU DID NOT ENTER ONE
     OF THE REQUIRED NUMBERS"
24 PRINT "PUSH ANY KEY TO TRY AGAIN"
25 IF INKEY$ = "" THEN GOTO 25
26 CLS
27 GOTO 6
28 LET K = 234000
29 GOTO 35
30 LET K = 468000
31 GOTO 35
32 LET K = 585000
33 GOTO 35
34 LET K = 702000
35 CLS
```

Here we have added 10 lines; but, if the input is an unexpected character, the program starts the imput sequence over. Note that the program gives the user some time to realize that something has gone wrong, continues only when the user wishes, and goes back far enough for the user to see the original instructions.

The next input line is number 125. That, and the surrounding few lines are reprinted here for reference.

```
120 PRINT "ARE ALL ENTRIES OK?  Y/N"
125 IF INKEY$ = "" THEN GOTO 125
130 LET C$ = INKEY$
132 PAUSE 20
135 IF C$ = "Y" THEN GOTO 143
140 IF C$ = "N" THEN GOTO 35
143 CLS
```

Here only a simple yes or no (Y/N) is expected. As the program was first written, one got the same response for any key except N. That is, any key except N is the equivalent of Y. This state of affairs can be corrected by the addition of two lines.

```
141 PRINT "YOU MUST ANSWER WITH
     EITHER A Y OR AN N"
142 GOTO 120
```

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Note that line 141 implies the difficulty with the first response and tells the user how to correct it. Also one has to carefully consider the lines which appear on the screen so that messages are not flashed on and off too rapidly and so that all the information you wish is on the screen at the time you wish it to be.

The third input line is number 355. That line and the surrounding few lines are reproduced here for reference.

```
345 PRINT "PRESS 1 FOR NEW DESIGN"
350 PRINT "PRESS 2 TO STOP"
355 IF INKEY$ = "" THEN GOTO 355
360 LET B$ = INKEY$
365 IF B$ = "1" THEN GOTO 375
370 IF B$ = "2" THEN GOTO 390
375 CLS
380 GOTO 6
386 PRINT "MAX CALCULATION
      LIMIT REACHED"
387 GOTO 340
390 STOP
```

Here one also has only two choices, but, in this case, any number except 2 will start the program over. Here the addition of three lines will correct the problem. Try

```
372 CLS
373 PRINT "PLEASE SELECT EITHER 1 OR 2"
374 GOTO 345
```

Again note that one has to pay a bit of attention to what the screen looks like if the program is to operate smoothly.

The basic idea behind all these input error checking hints is to consider the flow of the program when unexpected information is input. These ideas will work in many other circumstances than that of the examples used here. Try you hand at applying them to the program on transmission line lengths in this issue.

TECHNICAL TIDBITS

K5XY

I have just bought a very interesting booklet from L.I.S.T., the Long Island Sound Sinclair-Timex Group. It is entitled "ZX-81 and TS1000 Technical Tidbits". I found it very interesting.

It consists of 22 single sided pages full of information appropriate to the title. It has four full page circuit diagrams and several smaller ones. It contains a short history of these machines and details of where they were built and some of the minor variations between models.

There is much other useful information. In one section there is a careful description of how to take the computer apart and put it back together safely. This information is used in the section which deals with problems related to the flexible connection between the keyboard and the main circuit board which is the usual cause of keyboard problems. Power supply problems rate a separate section including suggestions on how to get rid of excess heat. A modification to include 16 K of internal RAM is discussed. Another internal RAM section gives some of the details needed to understand RAM decoding.

The thing I missed most was some details of the difficulties many face with loading tapes. The book is silent on this widely discussed subject. Nevertheless it contains much useful information for the ZX81, TS1000, and TS1500 owner. It only costs $4.00 and is obtainable from

L.I.S.T.
5 Peri Lane
Valley Stream, NY. 11581

TRANSMISSION LINE LENGTHS

WA3QLW

Here is a short program which will help you determine the lenghts of fractional wavelength transmission lines made from lines of various types. As is the case with most short programs, most of the lines are involved with input and output tasks. The heart of the program is in line 320.

```
 20 PRINT "PROGRAM TO DETERMINE"
 25 PRINT "TRANSMISSION LINE LENGTHS"
 27 PRINT
 30 PRINT "WHAT TYPE OF CABLE"
 33 PRINT
 35 PRINT "AIR LINE PRESS 1"
 40 PRINT "FOAM COAX PRESS 2"
 45 PRINT "REGULAR COAX PRESS 3"
 50 PRINT "TWIN-LEAD PRESS"
 60 IF INKEY$ = "" THEN GOTO 60
 70 LET A$ = INKEY$
 80 IF A$ = "1" THEN LET C = .86
 90 IF A$ = "2" THEN LET C = .8
100 IF A$ = "3" THEN LET C = .66
110 IF A$ = "4" THEN LET C = .82
120 PAUSE 50
130 CLS
150 PRINT "INPUT FREQ IN KHZ"
160 INPUT X
165 PRINT X
170 PRINT "DESIRED WAVELENGTH
180 PRINT "1/8W PRESS 1"
190 PRINT "1/4W PRESS 2"
200 PRINT "1/2W PRESS 3"
210 PRINT "5/8W PRESS 4"
220 PRINT "3/4W PRESS 5"
230 IF INKEY$ = "" THEN GOTO 230
235 LET B$ = INKEY$
240 IF B$ = "1" THEN LET Y = .125
250 IF B$ = "2" THEN LET Y = .25
260 IF B$ = "3" THEN LET Y = .5
270 IF B$ = "4" THEN LET Y = .625
280 IF B$ = "5" THEN LET Y = .75
290 PAUSE 50
300 CLS
320 LET L = ((984000*Y)*C)/X
340 PRINT Y; "WAVELENGTH = ";l; "FEET"
350 PRINT
360 PRINT " INPUT 1 FOR NEXT DESIGN"
370 PRINT " INPUT 2 TO STOP"
380 IF INKEY$ = "" THEN GOTO
390 LET D$ = INKEY$
400 IF D$ = "1" THEN GOTO 420
410 IF D$ = "2" THEN GOTO 535
420 CLS
430 GOTO 30
440 PRINT
445 PRINT "END"
450 STOP
9998 SAVE "TRANs"
9999 GOTO 20
```


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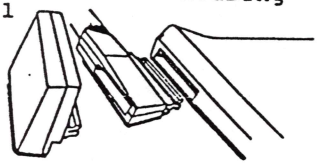

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73, K5XY

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